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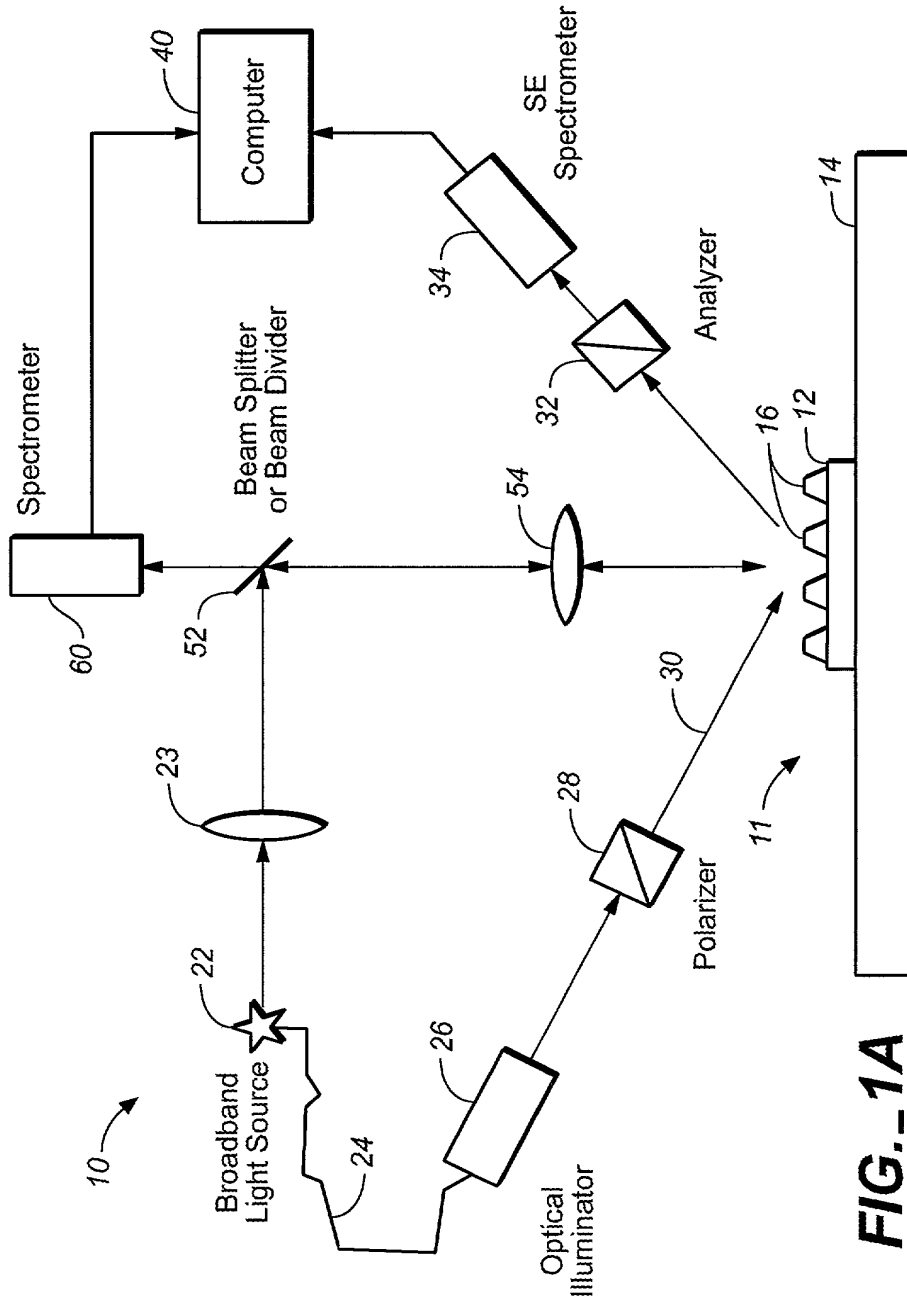
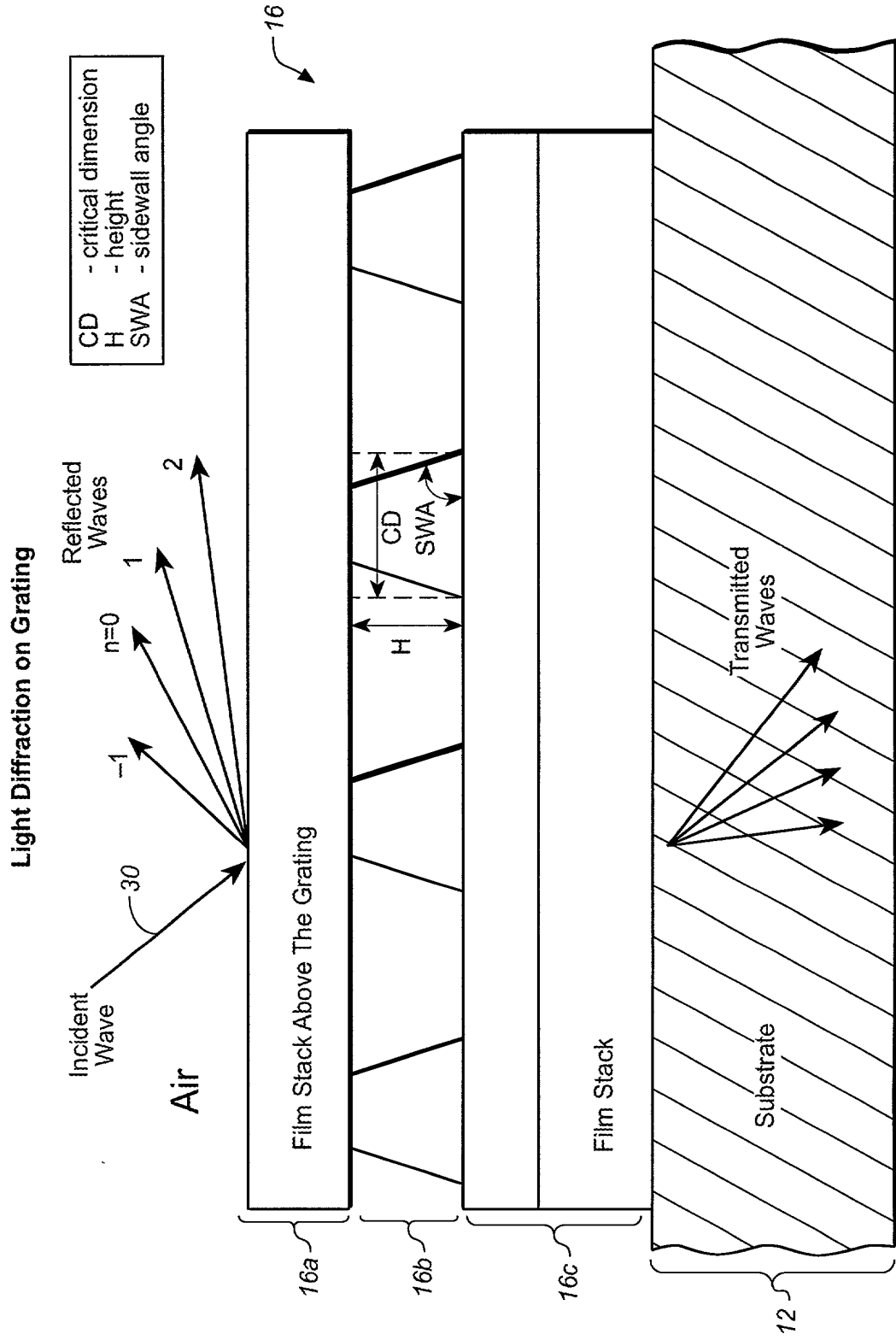


FIG. 1A

FIG. 1A

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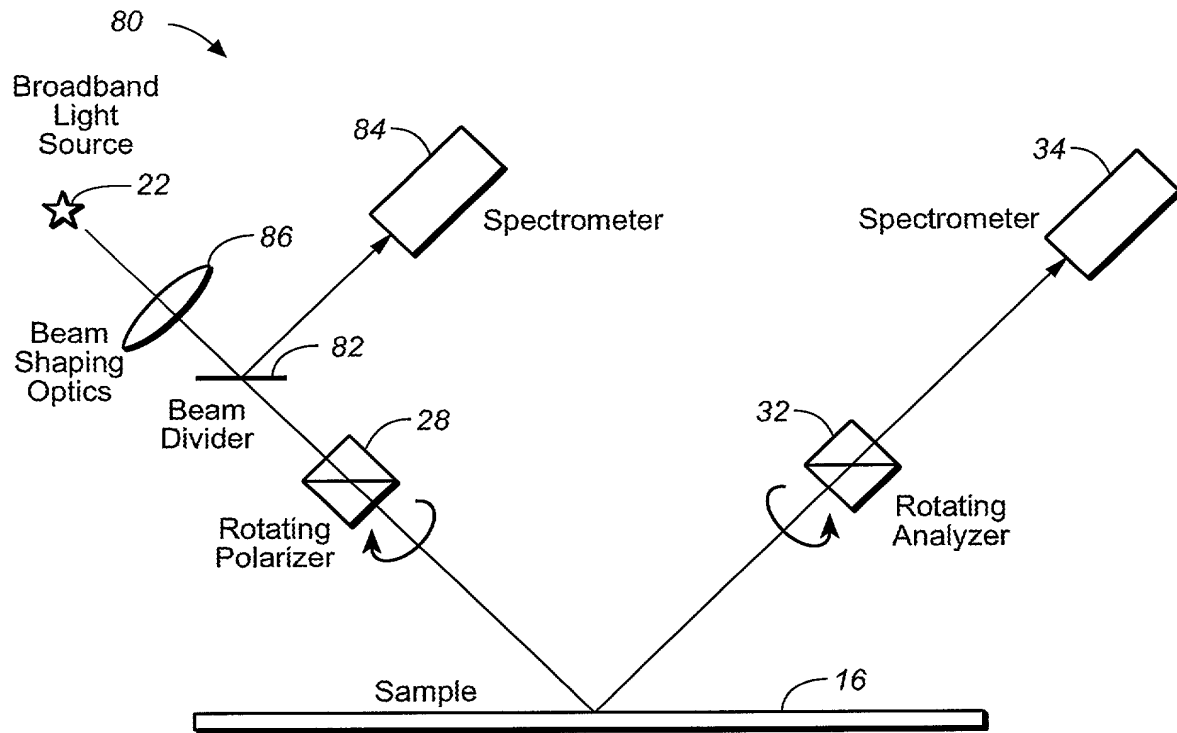


**FIG. 1B**

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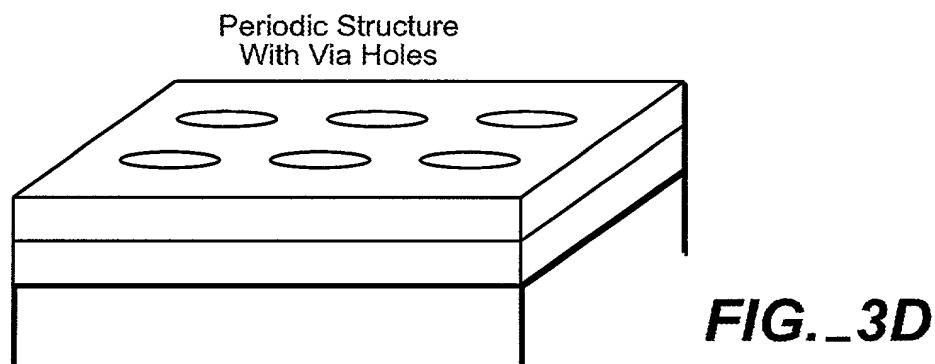
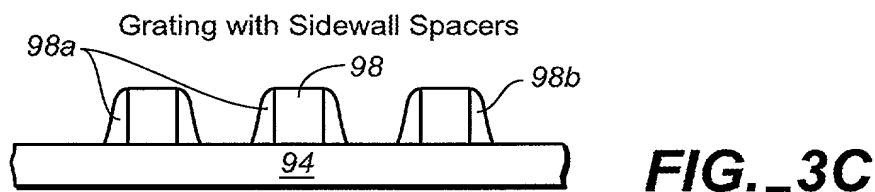
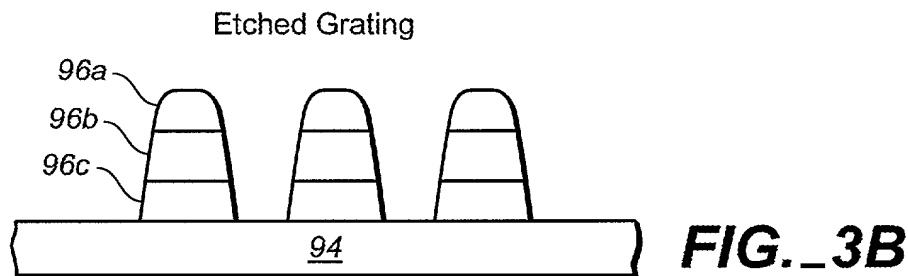
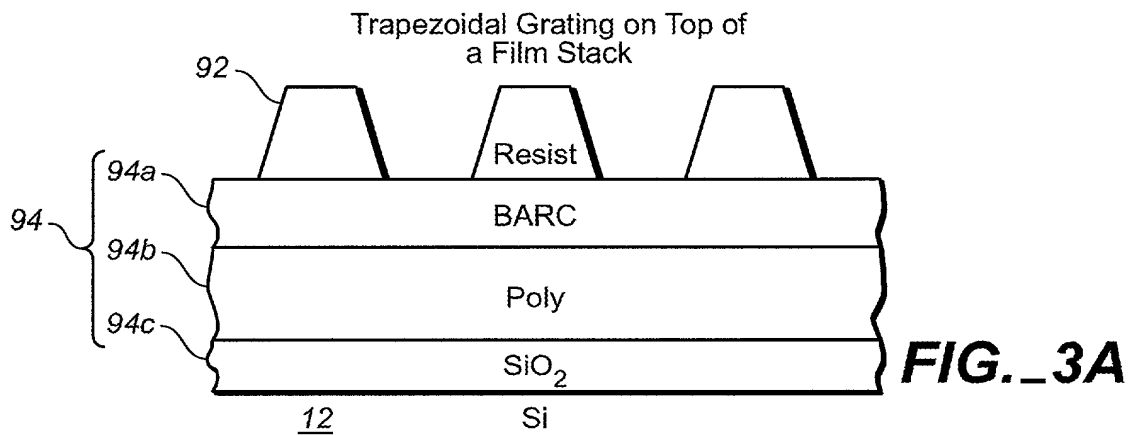
# Ellipsometer or Reflectometer With Rotating Polarizer and Analyzer



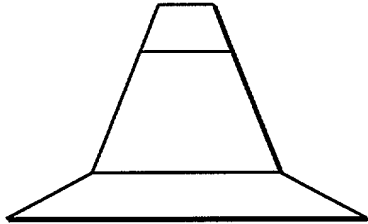
**FIG. 2**

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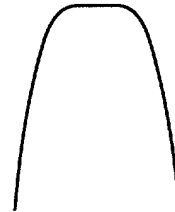


Single-material,  
Multi-Trapezoid Profile



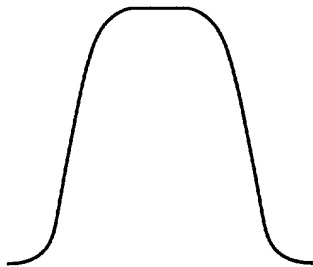
**FIG. 4A**

### Single-material, Quartic Profile



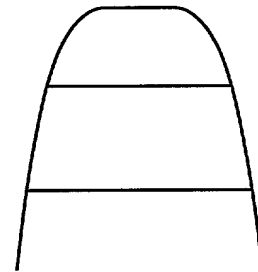
**FIG.\_4B**

### Single-material Quartic Profile with a Bottom Rounding



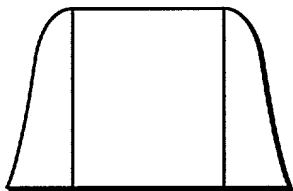
**FIG.\_4C**

## Multi-material Etched Profile Base on the Quartic Model



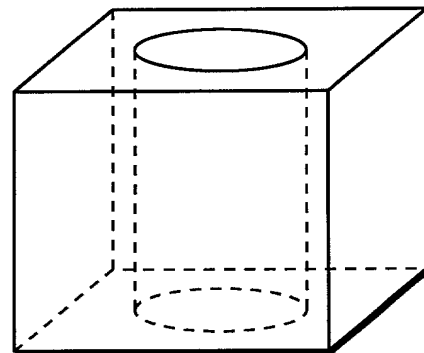
**FIG.\_4D**

### Two-material Profile with Sidewall Spacers



**FIG. 4E**

### 3-dimensional Via Hole Profile — a Hole in a Uniform Layer

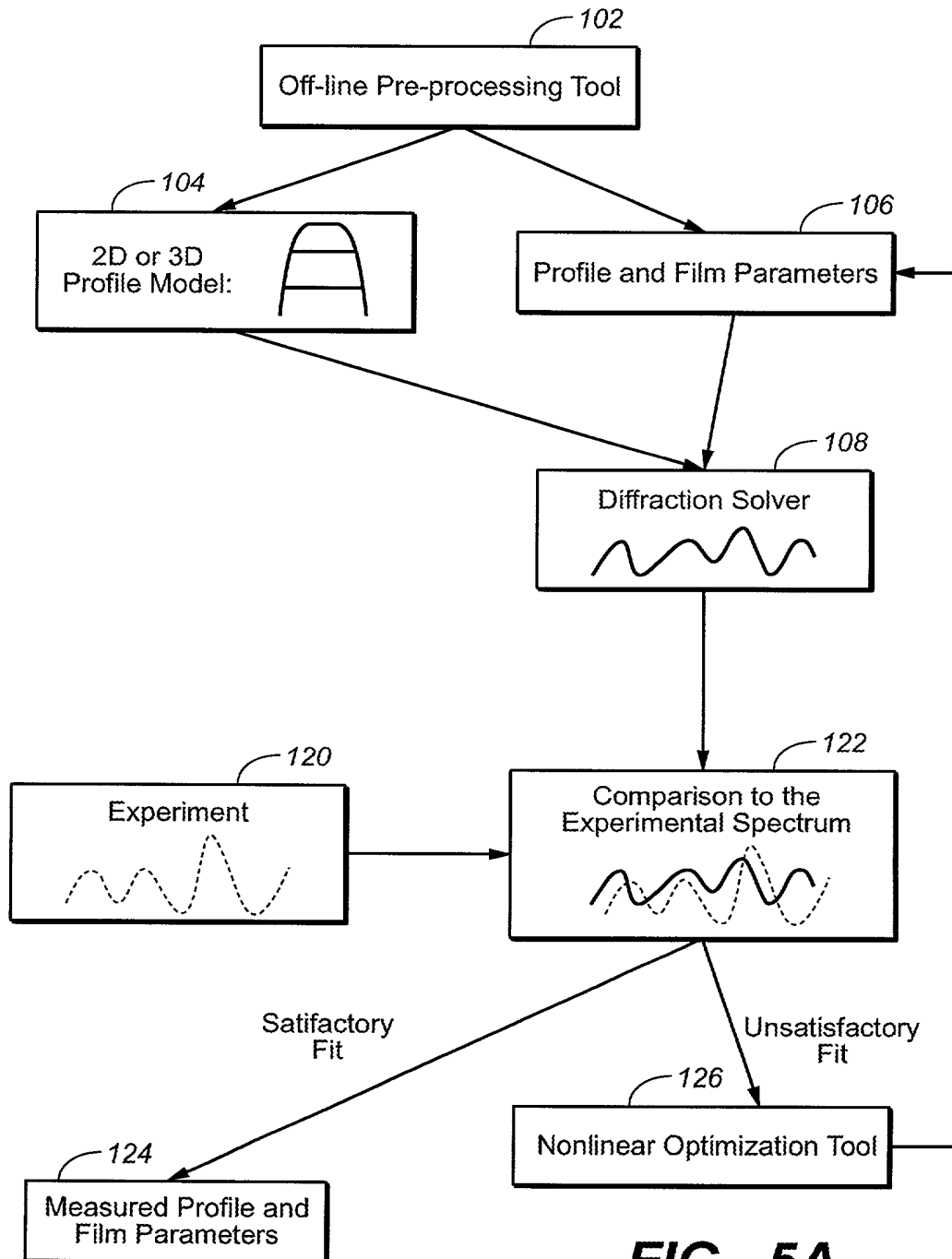


**FIG. 4F**

**FOR THE RECORD**

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Flowchart of Profile and Film Measurement

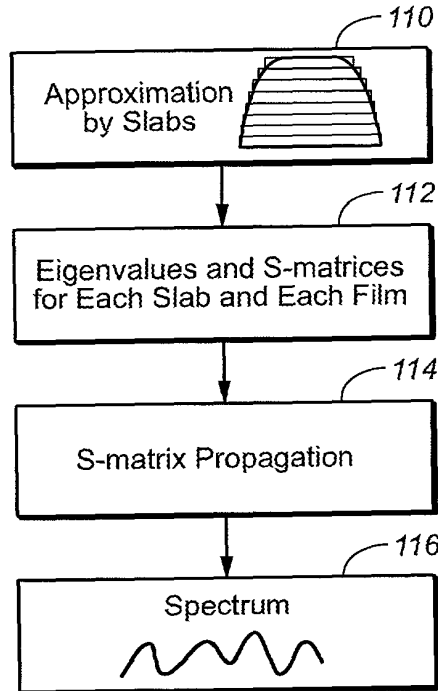


**FIG. 5A**

FIG. 5A

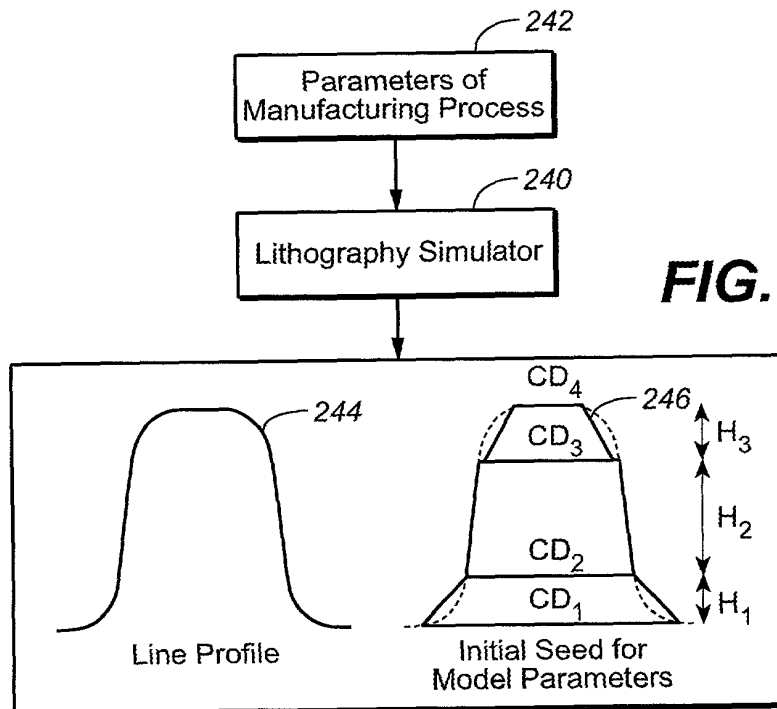
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### Flowchart of Diffraction Solver



**FIG.\_5B**

### Selection of the Optimal Profile Model and Initial Seed

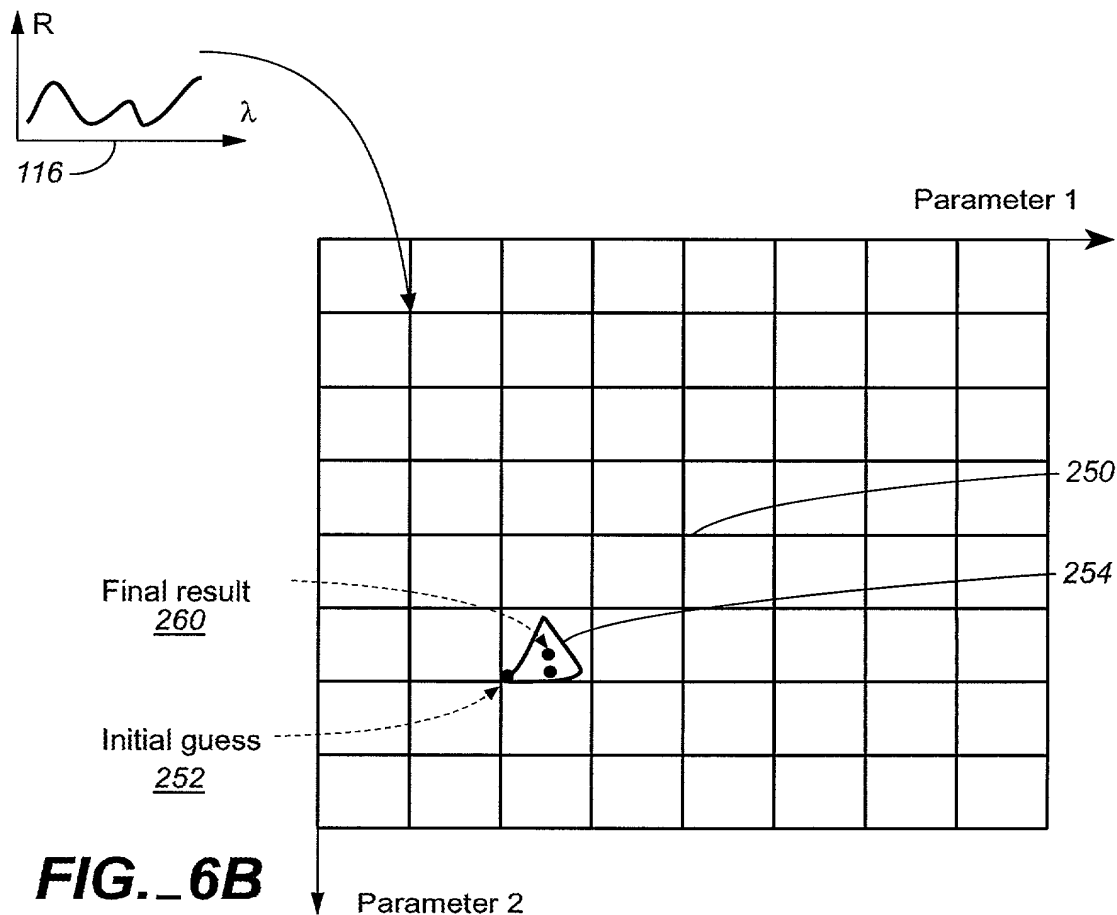


**FIG.\_6A**

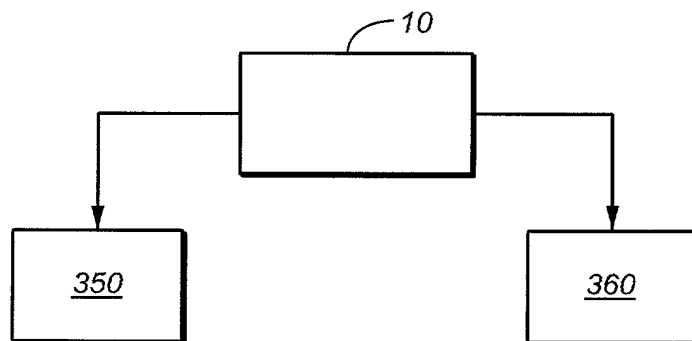
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**Selection of the Starting Point for Nonlinear  
 Optimization from the Coarse Library**



**FIG. 6B**



**FIG. 7**



Selection of the Optimal Signal for Matching

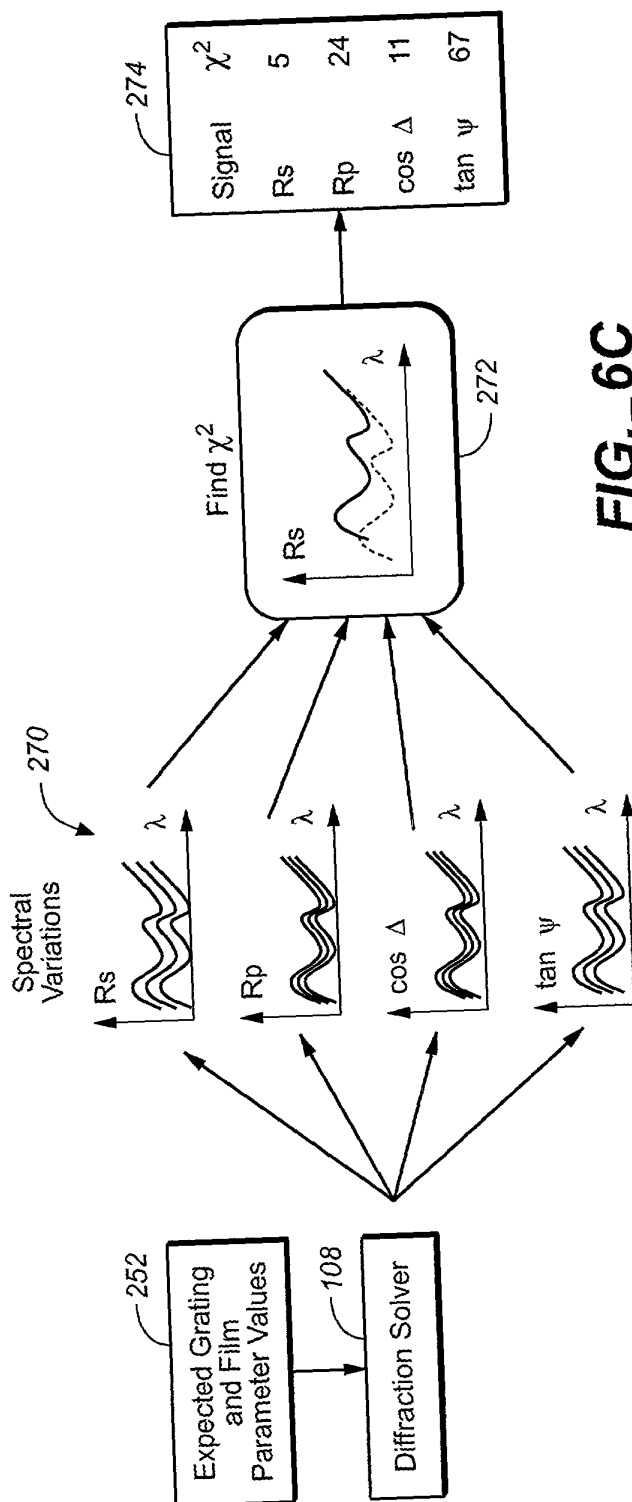
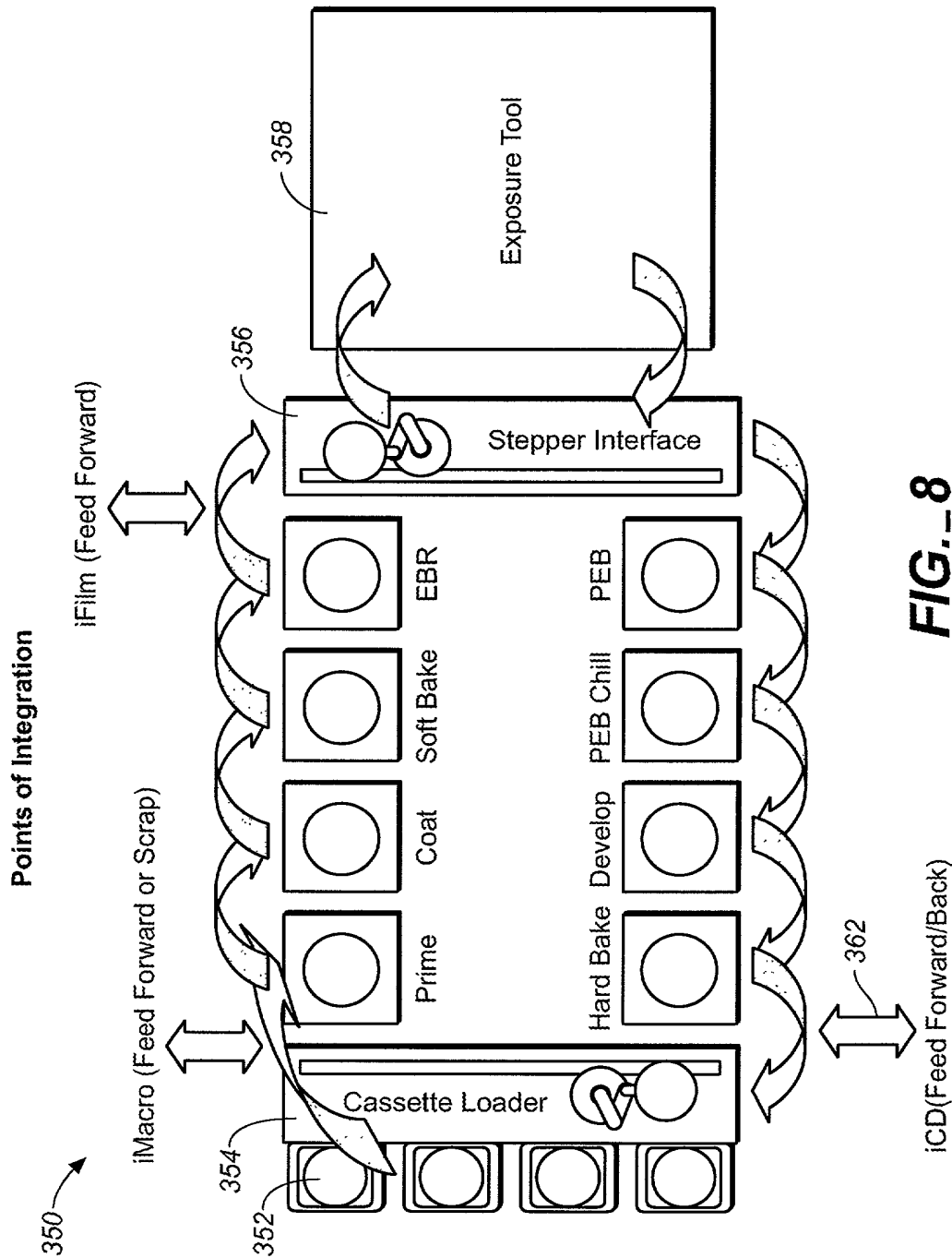


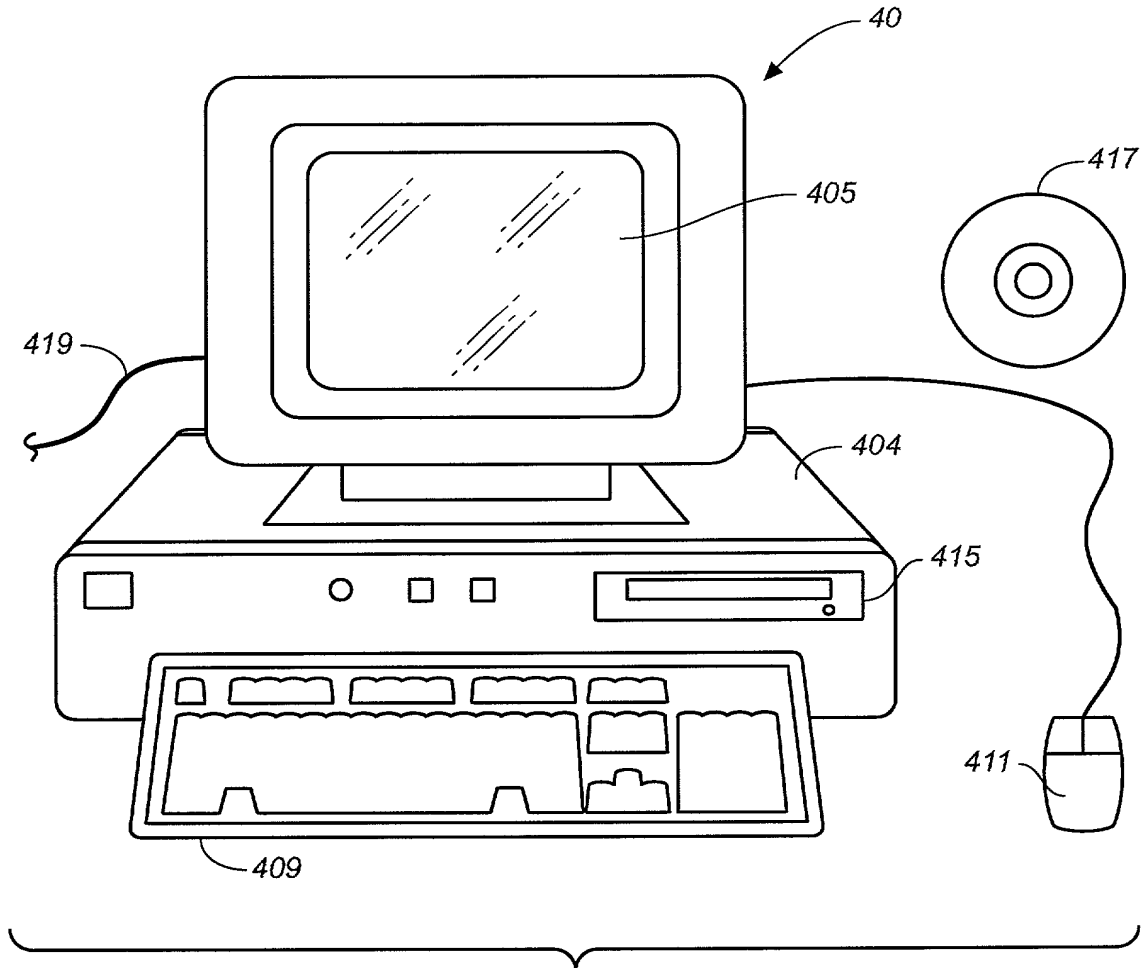
FIG. 6C

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**FIG. 8**

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**FIG. 9**

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